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Great Lakes - St. Lawrence River Water Levels

Volume 1, Number 12 **December 15, 1993**

Great Lakes Near Annual Lows

Middle Lakes Remain Above Long-Term Means

If you live, work or pass your time near the shores of Lakes St. Clair, Erie or Ontario, the water levels you are currently observing are likely at their annual lows.

"Having just about reached their low points for the year, these lakes should soon begin their annual upward trend, which usually peaks some time in mid summer," explains Ralph Moulton, Manager of Environment Canada's Great Lakes Water Level Communications Centre in Burlington.

Observers of water levels on Lakes Superior and Huron will probably see further, slight declines before these lakes begin their seasonal rises.

At the beginning of December Lakes Superior, Huron, St. Clair, and Erie were 4, 26, 38 and 36 centimetres respectively above their long-term (1900-1991) averages. Lake Ontario was at its seasonal mean level for the time of year.

"With Lakes Ontario and Superior near their average levels, it makes the job a bit easier for those who monitor conditions in order to regulate the outflows from these two lakes," adds Moulton.

Even though the levels of Lakes St. Clair and Erie are well above their long-term averages, they are still lower than they were at the same time last year. Lake Erie was 20 cm higher at the beginning of December in 1992, and Lake St. Clair was 6 cm higher. Lake Ontario, now at average, was 32 cm higher at the same time last year (See the bulletin).

Lakes Superior and Huron are higher than they were at the same time a year ago. Lake Superior's beginning of December level last year was 3 cm lower than it was this year; Lake Huron's level was 12 cm lower in early December of 1992.

With the three middle lakes -- Huron, St. Clair and Erie -- above their long-term averages, heavy precipitation over the winter could give rise to concerns about flooding and erosion next spring. However, the current risk of damage remains low.

The level in Montréal Harbour continued its seasonal decline to about 1 metre above chart datum. A further but slight decline is anticipated in

December. However, winter ice could affect the accuracy of the forecast.

Assuming the most probable water supplies over the next six months, Lakes Superior and Ontario are expected to remain close to their seasonal averages. The levels of Lakes Huron, St. Clair and Erie are forecast to remain well above average.

Note: The average level for Lake St. Clair shown on the Water Level Bulletin uses the period of record for the Belle River Gauge (1961-1991). This is higher than the 1900-1991 average referred to in this newsletter.

Great Lakes-St. Lawrence Facts

Stable Ice Cover Important To Maintaining Winter Flows

Ice in the Great Lakes' connecting channels and the St. Lawrence River can often be a cause of concern. An unstable ice cover can break up and block a channel to cause flooding, ice damage to the shoreline, interruptions to the supply of water for hydropower plants, and changes in lake levels.

The St. Mary's, Niagara and St. Lawrence Rivers have had ice jams in the past. As recently as last February, ice jams in the St. Lawrence River caused flooding in residential areas downstream of Montréal.

St. Marys River

During the winter, ice management becomes an important factor in regulating the outflows of Lake Superior.

Under the current Regulation Plan, the flow is limited in the winter to assist formation of a stable ice cover and to help prevent ice jams.

Every winter, the U.S. Army Corps of Engineers installs an ice boom in the lower St. Marys River to maintain a ferry service between Sugar Island and the U.S. mainland. This boom, which consists of a series of floating timbers anchored at intervals to the bottom, also reduces the risk of ice jams.

Regulation of Lake Superior outflows is the responsibility of the International Lake Superior Board of Control.

Niagara River

An ice boom has been installed at the head of the Niagara River every winter since 1964 to reduce the frequency and duration of ice runs from Lake Erie into the Niagara River.

Placement of the boom hastens the formation of, and lends stability to, the natural ice arch that forms near the head of the river every winter. The boom is removed every spring.

When in position approximately 3 kilometres upstream of the Peace Bridge, the ice boom spans the outlet of Lake Erie.

Operation of this ice boom is supervised by the International Niagara Board of Control. The Board monitors ice conditions on Lake Erie and the Niagara

River throughout the winter and recommends the timing of boom removal.

St. Lawrence River

For a short period at the beginning of every winter, outflows from Lake Ontario are often temporarily reduced to assist formation of a stable ice cover at the outlet of Lake St. Francis upstream of Montréal and in the international rapids section of the St. Lawrence River upstream of Cornwall, Ontario.

The hydro power utilities install ice booms at several sites to assist the freeze-up process. Once a stable ice cover is formed, flows in the river are gradually increased to offset any temporary flow reductions.

Ice conditions and operation of the ice booms are monitored closely by the International St. Lawrence River Board of Control, which oversees the regulation of Lake Ontario's outflows.

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Webmaster
Last Updated: 2001-08-23
Last Reviewed: 2001-08-23

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URL: http://www.on.ec.gc.ca/water/level-news/leveln-dec93.html